

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI DRAINAGE—continued					
Meramec:	<i>Feet</i>			<i>Feet</i>	
Pacific, Mo.....	11	9	12	15.1	12.
Valley Park, Mo.....	14	10	12	18.0	12.
Missouri:					
Waverly, Mo.....	23	22	23	24.0	23.
Boonville, Mo.....	21	24	26	22.8	25.
Hermann, Mo.....	21	24	27	22.8	26.
St. Charles, Mo.....	25	11	14	26.6	11.
		23	29	30.5	26.
Kansas: Topeka, Kans.....	21	20	20	21.8	20.
Solomon: Beloit, Kans.....	18	20	21	22.2	21.
Grand:					
Gallatin, Mo.....	20	20	23	33.5	21.
Chillicothe, Mo.....	18	20	27	30.2	22.
Brunswick, Mo.....	12	22	28	18.5	24.
Grand, Thompsons Fork: Trenton, Mo.....	20	20	20	21.4	20.
Osaage:					
Oseeola, Mo.....	20	9	12	23.5	11.
		21	30	22.0	22.
Warsaw, Mo.....	22	9	13	26.0	10.
Tuscumbia, Mo.....	25	10	14	28.5	12.
Arkansas:					
Webbers Falls, Okla.....	23	16	16	23.8	16.
		22	25	26.1	23.
Fort Smith, Ark.....	22	17	17	22.7	17.
		22	26	25.2	24.
Dardanelle, Ark.....	20	18	18	20.6	18.
Morrilton, Ark.....	20	24	27	23.0	25.
Yaucopin, Ark.....	29	(²)	(¹)	41.4	20-22.
Neosho:					
Oswego, Kans.....	17	20	23	23.0	21.
		26	26	19.1	26.
Wyandotte, Okla.....	23	21	22	26.8	22.
Pensacola, Okla.....	24	19	25	28.2	19.
Fort Gibson, Okla.....	22	10	10	22.3	10.
		15	16	23.0	16.
		21	26	28.3	23.
Verdigris:					
Independence, Kans.....	30	20	23	41.9	21.
		25	25	34.3	25.
Sageeyah, Okla.....	35	22	28	40.4	26.
Petit Jean: Danville, Ark.....	20	9	11	21.1	10.
White:					
Calico Rock, Ark.....	18	9	12	22.1	10.
Batesville, Ark.....	23	9	13	28.8	11.
Newport, Ark.....	26	11	25	29.3	13.
Georgetown, Ark.....	22	13	(¹)	25.8	22.
DeValls Bluff, Ark.....	24	16	(¹)	26.2	22, 23, 25,
					26.
Clarendon, Ark.....	30	20	(¹)	30.7	25-27.
Black:					
Williamsville, Mo.....	11	10	10	11.6	10.
Poplar Bluff, Mo.....	14	10	12	15.9	11.
		17	17	14.9	17.
Corning, Ark.....	11	4	(¹)	13.7	16, 17.
Black Rock, Ark.....	14	5	(¹)	22.7	11.
Cache: Patterson, Ark.....	9	14	25	9.5	16, 17.
Yazoo: Yazoo City, Miss.....	25	(²)	(¹)	29.6	26-29.
Tallahatchie: Swan Lake, Miss.....	25	(²)	(¹)	31.7	Mar. 29- Apr. 1.
Atahafalaya:					
Simmesport, La.....	41	13	(¹)		
Melville, La.....	37	Mar. 28	(¹)		
WEST GULF DRAINAGE					
Trinity: Dallas, Tex.....	25	21	21	25.9	21.
Brazos: Freeport, Tex.....	4	13	13	4.1	13.
Guadalupe: Victoria, Tex.....	16	10	13	22.8	13.
Rio Grande: San Marcial, N. Mex.....	3	8	8	3.0	8.
PACIFIC DRAINAGE					
Colorado: Parker, Ariz.....	7	8	16	8.1	11.
		22	(¹)	8.6	27.
Salt: Phoenix, Ariz.....	5	5	6	6.7	5.

¹ Continued at end of month.² Continued from last month.

THE EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, APRIL, 1929

By J. B. KINCER

General summary.—During the first decade vegetation of all kinds made exceptional progress, with abnormally warm weather and mostly ample soil moisture in Central and Eastern States. Fruits advanced unfavorably, with early varieties in bloom as far north as northern Indiana and southern Iowa, or two or three weeks earlier than the average. Field work made good progress in most areas,

but rain or wet soil caused further interruption in some interior sections, although spring planting advanced better than during the previous month. Local storms and tornadoes did some damage in Central-Northern States.

During the second decade rather frequent rains and wet soil in the interior caused further delay to spring work, with the progress in preparations two to three weeks late in sections; some plowing and seeding were accomplished locally. The unfavorable advance of fruit trees resulted in considerable harm in many places as heavy to killing frosts occurred during the period; much local injury was reported in the Appalachian region, but elsewhere only light harm resulted. In the South the weather permitted active field operations, and the previous rains greatly benefited the crops of Florida, but parts of Texas and New Mexico were still dry. Cold rain or snow was detrimental to livestock in some western sections, especially to young lambs; rain was needed in parts of the Pacific Northwest.

During the last decade frequent rainfall and continued wet soil caused further delay to spring work in many important agricultural sections, and dry, warm weather was needed generally from the central and northern Atlantic area westward to the Great Plains. Field work was delayed also in the southeast and north-central Cotton Belt, but seasonal preparations made satisfactory advance elsewhere in the South; rain was still needed in the Southwest, especially in western Texas and Oklahoma. Conditions were largely favorable in the Great Plains, especially in the North where spring work advanced rapidly.

Small grains.—Winter wheat made very good advance during the first decade in the central and eastern portions of the belt, except for some reports of wet soil. There was some soil blowing in parts of Kansas and Nebraska, but the crop did well in most of the Plains States; the Pacific Northwest still needed rain, but rapid growth was made elsewhere. Conditions were rather unfavorable for best growth of winter wheat in the Ohio Valley during the second decade, with some yellowing, and growth varied widely in the trans-Mississippi States, ranging from poor to excellent. Growth was very good in the Great Plains with the plants jointing in eastern Kansas. Marked improvement was made in Washington and some advance in Oregon; favorable conditions prevailed elsewhere, except for the dry portions of Texas. During the last decade growth of winter wheat varied greatly in the eastern belt, but condition remained mostly unchanged, except for some additional reports of yellowing in the interior valleys. The crop did well in the Great Plains, with much jointing in southern and eastern Kansas, but rain was still badly needed in parts of the Southwest.

Seeding spring wheat made good advance in most sections of the belt, except for some delay by wet soil in North Dakota, but toward the close of the month drying winds permitted resumption of work in the previously wet areas. Much wheat was still unsown in South Dakota at the close, but the early crop was coming up nicely to good stands and color. Oat seeding was well along during the first decade, but the weather during the latter part of the month was unfavorable for this work and at the close some rather widespread areas were still to be seeded; the winter crop did well generally.

Corn.—Preparations for corn planting were rather active during the first decade in much of the interior and eastern sections, but the soil continued too wet in considerable portions of the upper Mississippi Valley, es-

pecially in Iowa. Preparation of seed beds and planting made slow progress during the second decade, due to wet soil. Very little work was possible in Iowa and Missouri, but seeding made good advance in the Great Plains, except in some eastern parts. Continued unfavorable weather further delayed corn planting in the main parts of the belt the last part of the month, with some sections reporting this work two to three weeks late. In the Southwest and most of the Great Plains planting was favored while in the South conditions were rather favorable, though warmer weather was needed.

Cotton.—Much preparation of soil was possible in the Cotton Belt during the first decade, except for some locally wet sections. Some cotton was planted as far north as extreme southern North Carolina to central Arkansas and locally to southeastern Oklahoma. Seeding made rapid progress in Georgia, was general in South Carolina, and in the west to west-central Texas. During the second decade the nights were rather too cool for best germination in the eastern belt, but planting made mostly satisfactory advance. Early plantings were completed in South Carolina, with some cultivation, and seeding progressed rapidly in Georgia with some fields ready to chop out in southern parts. Planting progressed in parts of Arkansas and Oklahoma, and in Texas growth and stands were mostly good with general condition fairly good to excellent.

During the last decade temperatures were mostly seasonable, although the nights were rather too cool for good germination in many sections. Planting progressed well in more eastern parts, but elsewhere east of the Mis-

issippi River frequent rains caused some delay, with many irregular stands reported. It was too cool and wet in much of Arkansas, but good progress was made in Oklahoma under favorable conditions. In Texas the weather favored planting, replanting, and chopping, and progress of the early-planted crop was good, with stands and general condition mostly satisfactory.

Miscellaneous crops.—Meadows and pastures did well in practically all sections east of the Mississippi River and ranges were generally satisfactory in the Great Plains. Some livestock were on range in Montana, but growth of grass was mostly slow; conditions were generally favorable in Wyoming until near the close, but the severe weather then prevailing was of short duration and losses were light. Satisfactory conditions prevailed elsewhere, except for some slow growth of grass, due to cool weather, in the Great Basin. Livestock did well generally, but there were continued reports of local losses to shorn sheep and young lambs.

Potato planting progressed during the month, and at the close had begun north to the northern border States. Truck crops did well, except for some frost injury to tender varieties during the second decade. The unfavorable forcing of fruit which continued into the first decade resulted in rather widespread harm from the frosts of the second decade in the northern parts of the country, extending southward into the Appalachian region. Citrus needed rain in Florida, and toward the close of the month there were reports of fruit dropping; satisfactory condition was indicated in California.

551.506 (261.1)

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

NORTH ATLANTIC OCEAN

By F. A. YOUNG

Over the greater part of the ocean the weather conditions during April would not be considered unusual, although the number of days with gales was above the normal along the American coast between Hatteras and Nova Scotia and also over a limited area in the middle section of the steamer lanes.

As shown in Table 1, the average pressure at three land stations on the British Isles was above normal, but the positive departures were not as large as in March. The North Atlantic high, while somewhat more active than in the previous month, was still less prominent than usual, and in consequence, at times easterly winds replaced the usual westerlies over the eastern section of the steamer lanes.

Fog was unusually prevalent over the Grand Banks and off the American coast north of the thirty-fifth parallel; it was reported on from 2 to 3 days in the vicinity of the British Isles, 1 day in the Gulf of Mexico, and not over 1 day in any 5° square on the steamer lanes between the twentieth and fortieth meridians.

On the 2d a low central near Sydney, Nova Scotia, was responsible for moderate westerly gales in the southerly quadrants, that continued until the 3d, although on the latter date the storm area had contracted somewhat in extent.

On the 6th a low was over the Straits of Belle Isle that moved rapidly eastward, and on the 7th moderate to strong gales accompanied by rain and hail prevailed over the steamer lanes between the thirtieth and forty-fifth meridians. From the 8th to 10th moderate weather was the rule, although a few vessels encountered winds of force 7 and 8 in different sections of the steamer lanes.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, 8 a. m. (seventy-fifth meridian). North Atlantic Ocean, April, 1929

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	Inch (°)	Inches		Inches	
Julianeab, Greenland	29.80		30.38	18th	29.08	11th.
Belle Isle, Newfoundland	29.84	+0.01	30.30	4th	28.80	25th.
Halifax, Nova Scotia	29.94	+0.01	30.38	12th	29.32	18th.
Nantucket	29.89	-0.08	30.36	3d	28.94	17th.
Hatteras	29.99	-0.04	30.50	3d	29.14	16th.
Key West	30.02	+0.01	30.26	3d	29.72	16th.
New Orleans	29.99	-0.05	30.32	4th	29.64	15th.
Cape Gracias, Nicaragua	29.91	-0.06	29.98	4th	29.82	10th.
Turks Island	30.09	+0.07	30.24	3d	29.90	16th.
Bermuda	30.17	+0.09	30.46	4th	29.70	17th.
Horta, Azores	30.03	-0.08	30.46	29th	29.66	9th.
Lerwick, Shetland Islands	29.96	+0.16	30.53	11th	29.57	27th.
Valencia, Ireland	30.04	+0.15	30.29	11th	29.47	28th.
London	29.99	+0.12	30.34	17th	29.43	29th.

¹ Average of 26 observations.

² No normal available.

³ From normals shown on Hydrographic Office Pilot Chart, based on observations at Greenwich mean noon, or 7 a. m., seventy-fifth meridian time.

⁴ And on other date or dates.

⁵ From normals based on 8 a. m. observations.

Charts VIII to XI show the conditions from the 11th to 14th, inclusive, when one disturbance prevailed over the middle and eastern sections of the ocean, and another off the American coast.

At the time of morning observation on the 15th the land station at Vera Cruz, Mexico, reported a barometer of 29.74 inches, wind north, force 8, with a maximum velocity of 64 miles an hour. No reports have been received from vessels in this vicinity or in any port of the Gulf of Mexico denoting any but moderate winds on that day, although an area of low pressure was over Alabama and Northern Florida with barometric readings of 29.56